

## Description of a new species and redescriptions of two species of the genus *Palaeomicroides* (Lepidoptera, Micropterigidae) from Taiwan

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**Abstract** A new species of the genus *Palaeomicroides*, *P. aritai* sp. nov., is described and figured. Two previously known species, *P. obscurella* Issiki and *P. marginella* Issiki, are redescribed as for the genitalic characters and illustrated.

**Key words** Lepidoptera, Micropterigidae, *Palaeomicroides aritai* sp. nov., Taiwan.

Up to the present, no more taxa have been added to the Taiwanese fauna of the archaic family Micropterigidae since Issiki (1931), although it has been suggested that further undescribed species are present (Gibbs, 1983; Kristensen, 1984). In 1984 Prof. Dr Arita of the Meijo University had an opportunity to collect many micropterigid moths from the central highlands of Taiwan. As a result of examination, it became clear that these were comprised of three known species, *Paramartyria maculatella* Issiki, *Palaeomicroides obscurella* Issiki and *P. marginella* Issiki, and an undescribed species of the genus *Palaeomicroides* represented by only one male. The present paper gives a description of a new *Palaeomicroides* species and redescriptions of *P. obscurella* and *P. marginella* as for the genitalia, the female genitalia of the former being firstly treated.

By the dissection of the female genitalia of *Palaeomicroides* species treated here, four fork-like sclerites functioning as the signum (or signa) of the higher Lepidoptera were recognized on inner surface of the corpus bursae. These sclerites are homologous with the structures which were noticed and named trident or fork organs by Philpott (1927) in two southern hemisphere and one Nearctic species of the *Sabatinca* group. The same organs have been also known from the Chinese species of the genus *Paramartyria* Issiki (Yang, 1980). Minet (1985) regarded this unique character as a synapomorphy of a genus group represented by *Sabatinca* sensu Minet, *Epimartyria* Walsingham, *Paramartyria* and *Neomicropteryx* Issiki, although it had not been confirmed whether trident organs are present or not in the last two genera. The presence of trident organs in *Palaeomicroides* species gives further support to the above monophyletic group, but evaluation of this character will be discussed in the future.

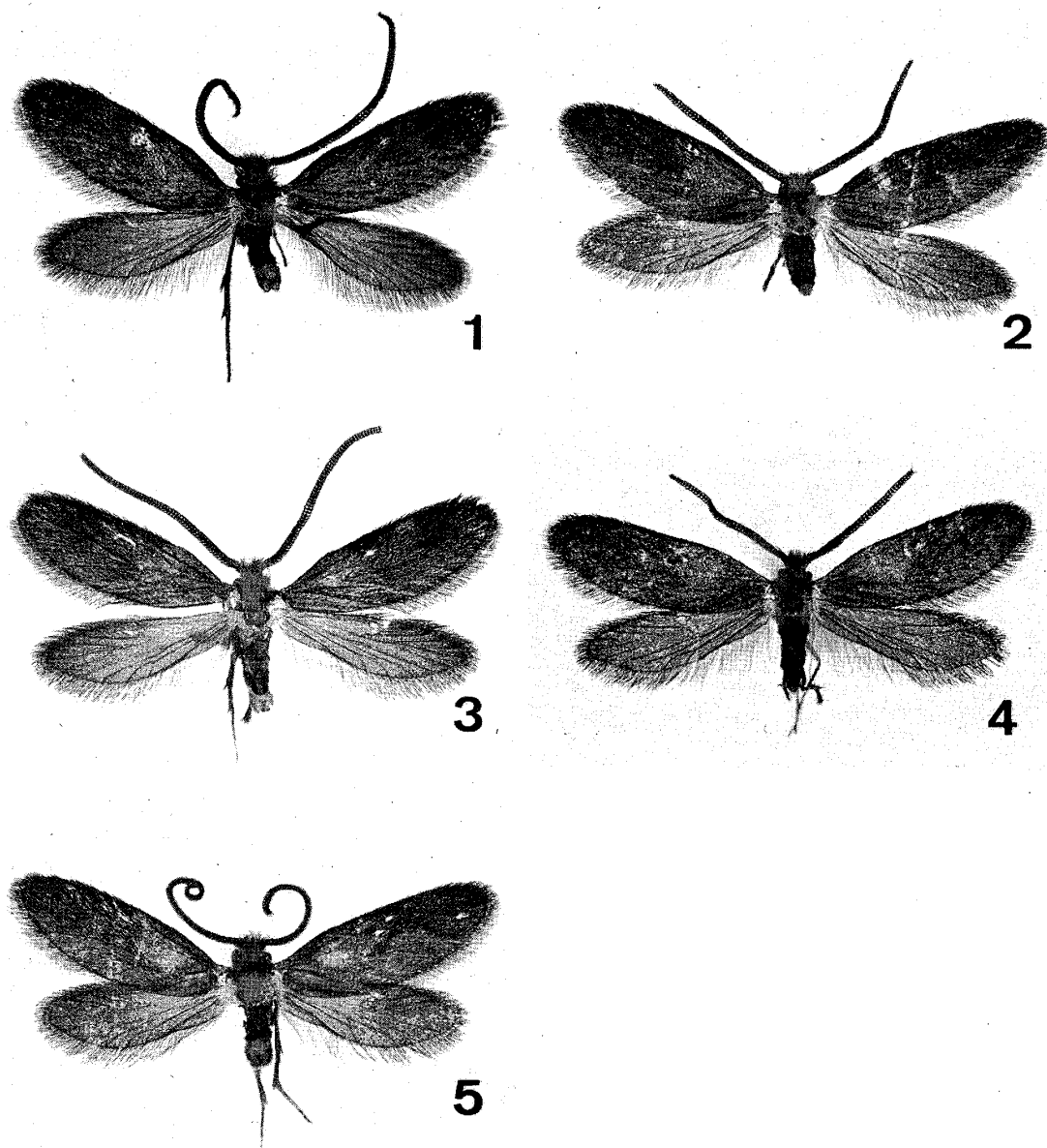
Before going further, I wish to express my hearty thanks to Prof. Dr Yutaka Arita of the Meijo University for his constant encouragement and for permitting me to study the Taiwanese micropterigid moths.

### *Palaeomicroides obscurella* Issiki (Figs 1-2, 6-7)

*Palaeomicroides obscurella* Issiki, 1931, *Proc. zool. Soc. Lond.* 1931: 1008; Heppner, 1992, *Lepid. Taiwan* 1 (2): 61.

Male (Fig. 1). Forewing length 4.3 mm.

Male genitalia (Fig. 6). Tergite of 9th ring rather narrow. 10th tergite almost triangular in dorsal view, with a deep sinus at apex in dorsal view, with ridges on both sides continuous with short tergal lobes. Gonopod rather short, slightly projected upwards at inner and outer ends, with a incision at middle of outer margin; basal inner surface of



Figs 1-5. *Palaeomicroides* species. 1. *P. obscurella* Issiki, male. 2. *Ditto*, female. 3. *P. marginella* Issiki, male. 4. *Ditto*, female. 5. *P. aritai* n. sp., male, holotype.

gonopod expanding dorsally along with caudal margin of 9th ring and expanding inwardly, with three long stout projections, one of them expanding from dorsal inner wall near the 10th tergite and strongly curved downwards, and the other two from near gonopod base; basal outer margin of gonopod slightly expanding dorsally along posterior margin of 9th ring. Phallus rather long, about  $4/5$  length of a long axis of genital segments; aedeagus with a pair of lateral small spines near caudal end.

Female (Fig. 2). Forewing length 4.7-4.9 mm.

Female genitalia (Fig. 7). Corpus bursae subglobular, with many fine granules at cephalic  $1/3$ , with 4 fork-like sclerites (trident organs); each trident organ covered with hairy spines on each prong, with a pair of basal free projections at caudal  $1/3$  of corpus bursae. 10th+11th segment consisting of paired sclerotized plates and a well sclerotized, trapezoidal dorsal plate; each sclerotized plate with a hemispherical small concav-

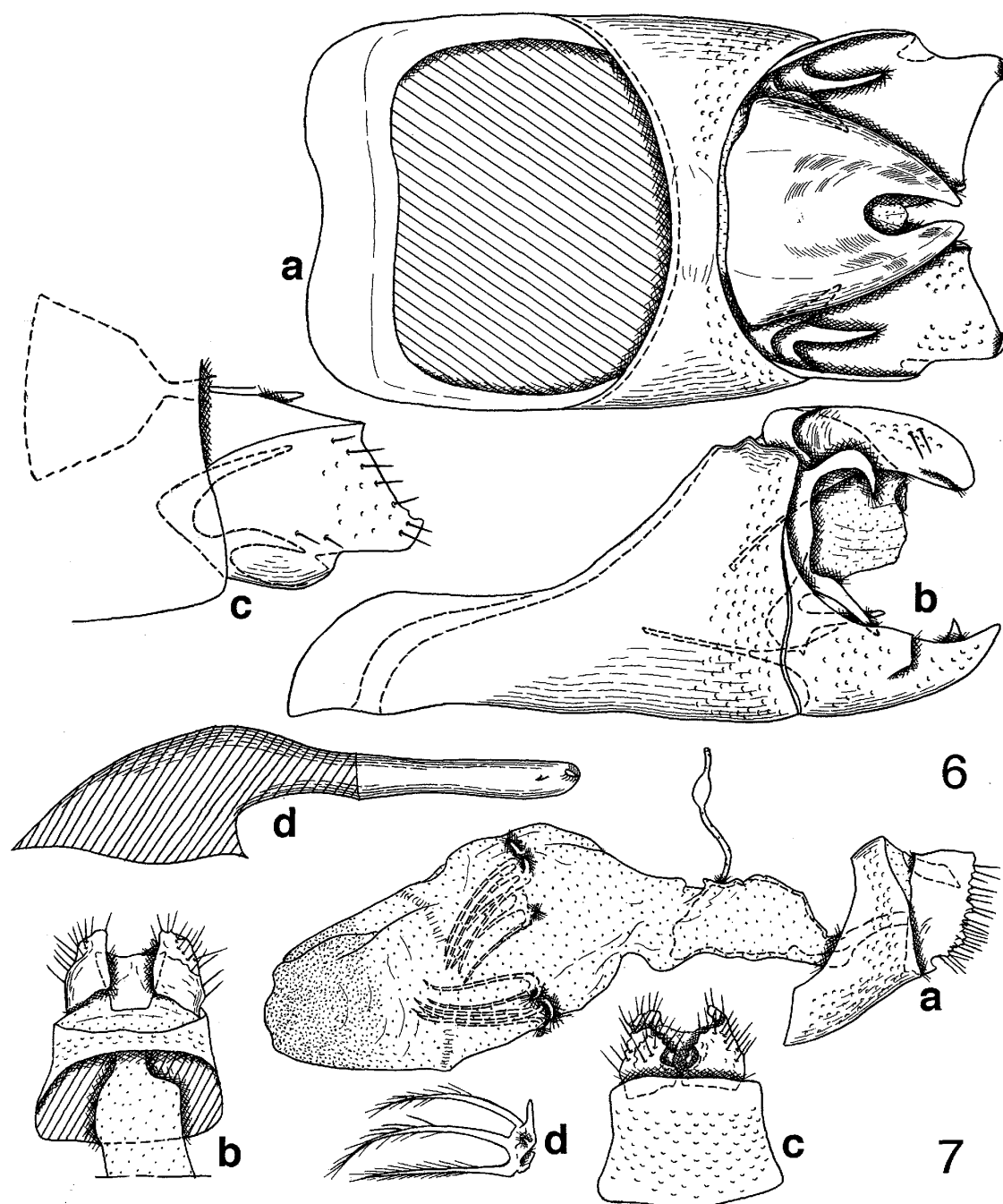


Fig. 6. Male genitalia of *Palaeomicroides obscurella* Issiki (a: genital segments, dorsal view, b: *ditto*, lateral view, c: left gonopod, ventral view, d: phallus, lateral view).

Fig. 7. Female genitalia of *Palaeomicroides obscurella* Issiki (a: whole aspect, lateral view, b: 9th and 10th+11th segments, dorsal view, c: *ditto*, ventral view, d: trident organ).

ity at ventral part.

Specimens examined. 1 ♂ 6 ♀, Taiwan, Chaiyi-Hsien, Fennchihhu (ca 1,400 m), 15. VII. 1984, Y. ARITA legit.; 3 ♂ 5 ♀, same locality, 17. VII. 1984, Y. ARITA legit.

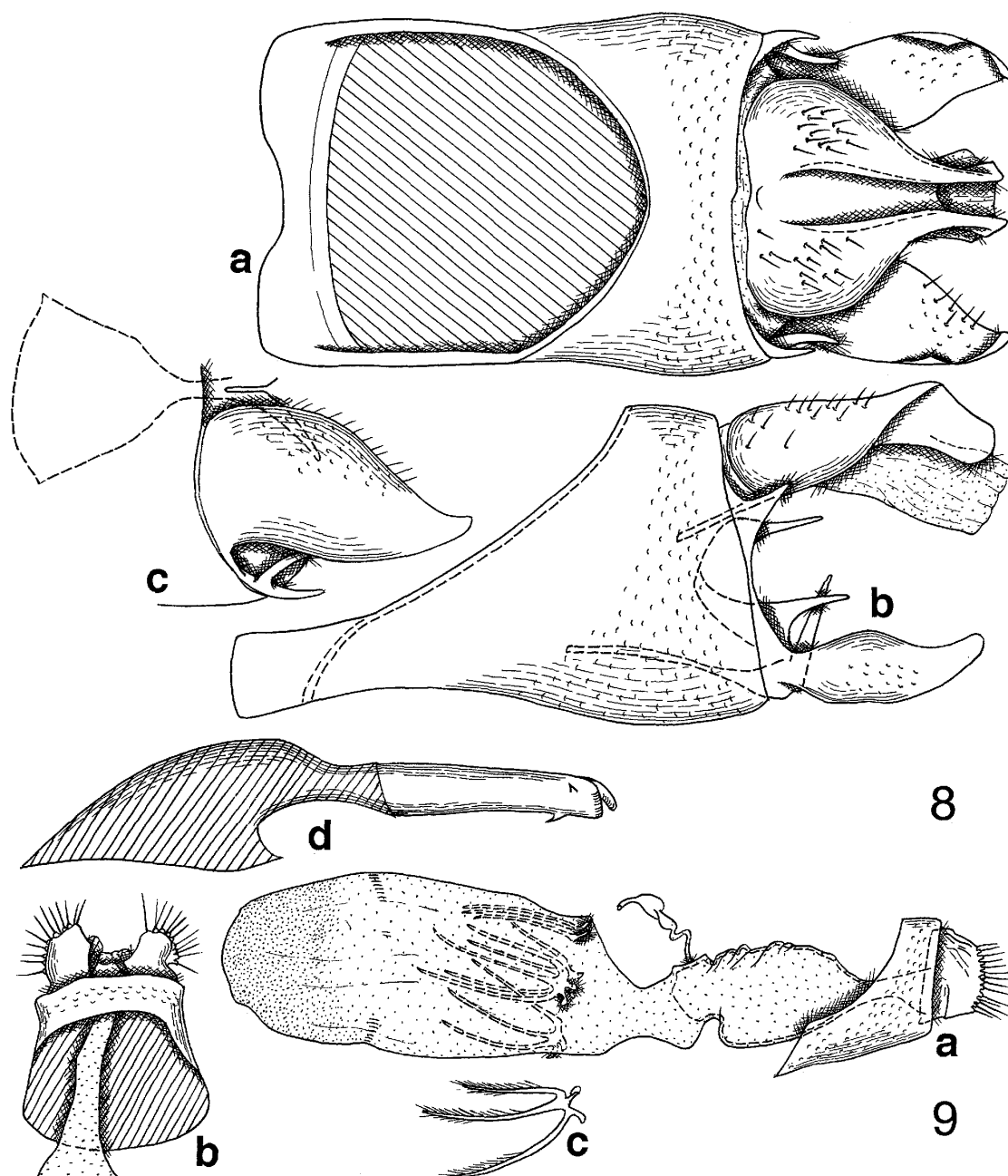


Fig. 8. Male genitalia of *Palaeomicroides marginella* Issiki (a: genital segments, dorsal view, b: *ditto*, lateral view, c: left gonopod, ventral view, d: phallus, lateral view).

Fig. 9. Female genitalia of *Palaeomicroides marginella* Issiki (a: whole aspect, lateral view, b: 9th and 10th+11th segments, dorsal view, c: trident organ).

***Palaeomicroides marginella* Issiki (Figs 3-4, 8-9)**

*Palaeomicroides marginella* Issiki, 1931, *Proc. zool. Soc. Lond.* **1931**: 1009; Heppner, 1992, *Lepid. Taiwan* **1** (2): 61.

Very similar to other species treated here, but distinguishable from them by a small apical maculation and yellowish white cilia at apex of the forewing.

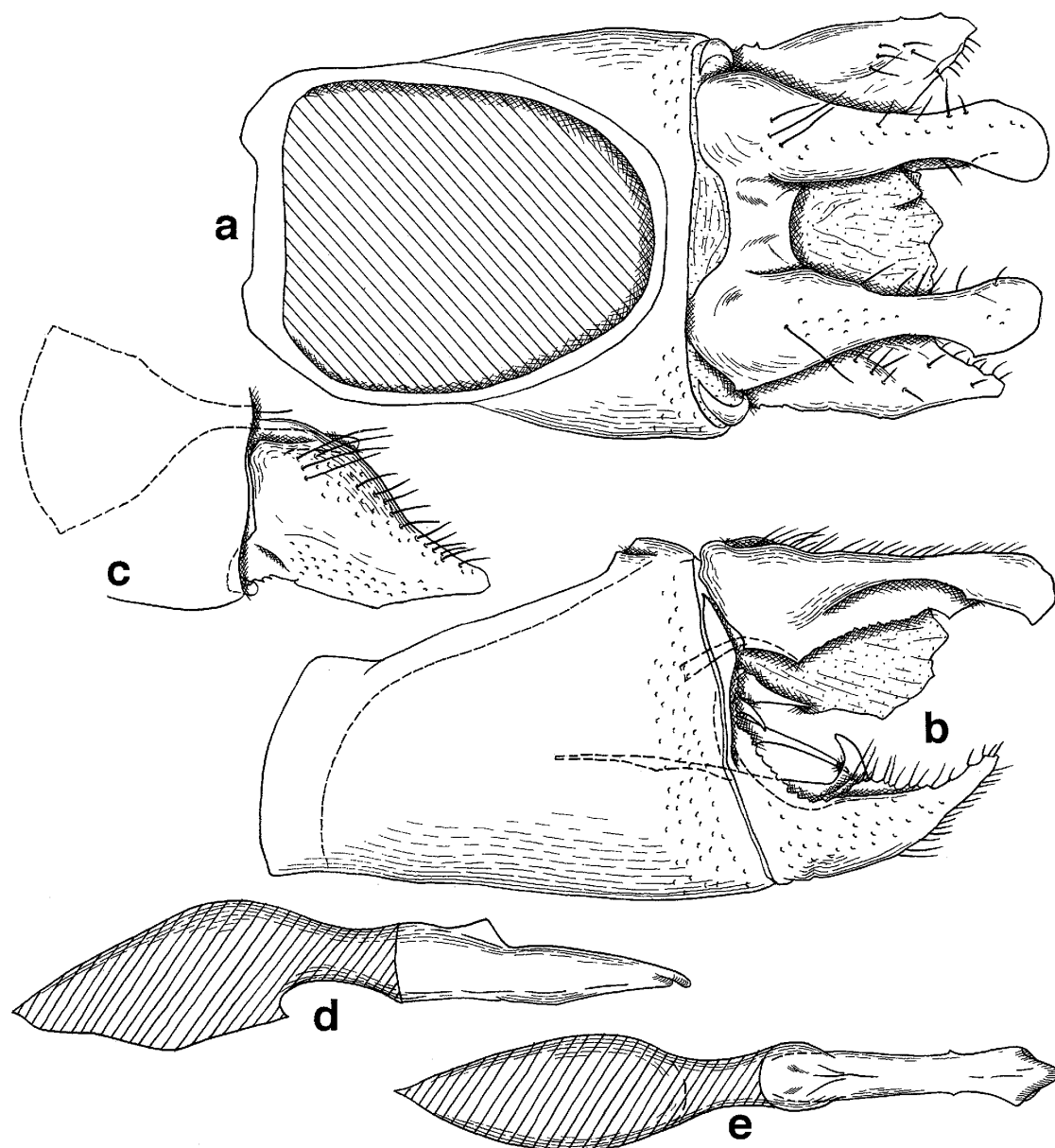


Fig. 10. Male genitalia of *Palaeomicrodes aritai* n. sp., holotype (a: genital segments, dorsal view, b: *ditto*, lateral view, c: left gonopod, ventral view, d: phallus, lateral view, e: *ditto*, dorsal view).

Male (Fig. 3). Forewing length 4.3–5.0 mm.

Male genitalia (Fig. 8). 10th tergite rounded at both sides, concaved longitudinally; 10th tergal lobe short, flattened, twisted inwardly. Gonopod rather slender, with a long projection towards dorsally at inner basal part continued with median plate; basal inner surface of gonopod expanding dorsally and inwardly, with two long projections, one of them being gently curved and near the 10th tergite, and the other almost straight and near the gonopod base; outer basal margin of gonopod well expanding dorsally along posterior margin of 9th ring, with a gently curved projection near 10th tergite. Phallus rather long, about  $\frac{4}{5}$  length of a long axis of the genital segments; aedeagus with two small spines at caudal  $\frac{1}{3}$  on ventral median line and at dorsolateral part near caudal

end, respectively.

Female (Fig. 4). Forewing length 4.6–4.9 mm.

Female genitalia (Fig. 9). Corpus bursae subglobular, rather long, with many fine granules at cephalic 1/3, with 4 trident organs; each trident organ with hairy spines sparsely on each prong, with a pair of basal free projections near caudal end of corpus bursae. 10th+11th segment consisting of a small sclerotized dorsal plate and paired lateral plates; each plate with a slender basal concavity ventrolaterally.

Specimens examined. 6 ♂ 2 ♀, TAIWAN, Chaiyi-Hsien, Alishan (ca 2,200 m), 11. VII. 1984, Y. ARITA legit.; 6 ♂ 3 ♀, same locality, 12. VII. 1984, Y. ARITA legit.; 8 ♂ 6 ♀, same locality, 13. VII. 1984, Y. ARITA legit.

***Palaeomicroides aritai* sp. nov.** (Figs 5, 10)

Coloration and maculation similar to other congeners.

Male (holotype) (Fig. 5). Forewing length 4.3 mm. Head capsule brown, densely covered with long piliform scales except for an exposed part between compound eye and ocellus; tufts of scales dark orange, partly fuscous on their apical 1/3. Antennal scape and pedicel with dark orange hairy scales; dense hairy scales on flagellar segments almost black, partly metallic blue. Thorax grayish brown with fuscous scales; tegular tufts of piliform scales dark orange; mesonotum with metallic blue scales scarcely, fringed with dark orange piliform scales on posterior margin. Legs with fuscous scales; fore and mid femur orange; inner surface of fore and mid tibia, a terminal band of each tarsal segment and hind tibial spurs pale orange. Forewing ground color dark brown with golden luster, with three deep purple maculations; basal one on proximal 1/5, broad, indistinct, extending from costa and reaching near dorsum; second one largest, triangular, with its base extending from basal 2/5 to apical 1/5 along costal margin and with its apex reaching before dorsum at half of forewing length, with a golden luster spot on costal 2/3; third one on apical part, smallest, indistinct; cilia fuscous, paler on outer half; undersurface fuscous, with no maculation. Hindwing dark purplish fuscous, undersurface as in forewing. Pregenital abdomen grayish brown, covered with glossy fuscous scales; venter paler. Genital segments grayish white, covered with glossy brownish yellow scales, with a row of fuscous scales at mesal part of 9th tergite; terminal margins of paired 10th tergal lobes glossy fuscous.

Male genitalia (Fig. 10). 9th ring and 10th tergite strongly sclerotized. 9th ring with very narrow tergite; lateral wall well expanding dorsally at cephalic part. Paired 10th tergal lobes very long, spatulate at apex. Gonopod shorter than 10th tergite, tapering towards caudal end, with a long, stout, curved projection towards dorsally at inner mesal part continued with median plate proximally; basal inner surface of gonopod expanding dorsomesally, with three rather curved projections near 10th tergite; basal outer margin of gonopod well expanding dorsally along posterior margin of 9th tergite. Phallus rather long, about 5/6 length of long axis of genital segments; aedeagus with a pair of small lateral spines at caudal 1/3 of aedeagus, with a longitudinal slender ridge on dorsal median line near phallobase; tip of aedeagus triangular in dorsal view.

Female. Unknown.

Specimen examined. Holotype, ♂: TAIWAN, Chaiyi-Hsien, Fennchihhu (ca 1,400 m), 15. VII. 1984, Y. ARITA legit.

Type depository. The holotype is preserved in the National Science Museum, Tokyo.

Host. Unknown.

Etymology. This species is named after Prof. Dr Yutaka Arita who collected this species.

Remarks. The present species is indistinguishable in appearance from the previously known species of the genus *Palaeomicroides*, but easily distinguishable from others by the spatulate 10th tergal lobes of the male genitalia. The well sclerotized genital segments of this species are also distinct.

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## 摘 要

台湾から *Palaeomicroides* 属 (コバネガ亜目, コバネガ科) の 1 新種の記載と 2 既知種の再記載 (橋本里志)

名城大学の有田豊教授が台湾で採集したコバネガ科の標本を調べたところ, 1 未記載種と 3 既知種が確認できた. ここでは, *Palaeomicroides* 属の 1 新種を記載し, 2 既知種について雌雄交尾器をもとに再記載をおこなった.

*Palaeomicroides aritai* Hashimoto, sp. nov.

外見上は既知種に極めて似ているが, 雄交尾器は強く硬化し, 10 節背板がへら状の長い対の突起を有することで, 他から容易に区別することができる.

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